

WHAT IS CLAIMED IS:

1. A variable-frequency inverter microwave oven comprising:

5 a magnetron for generating electromagnetic waves;

direct current (DC) voltage generation means for rectifying and smoothing a commercial alternating current (AC) voltage to generate a DC voltage, said commercial AC voltage being an inverter drive voltage;

10 switching means for performing a switching operation based on said DC voltage from said DC voltage generation means to generate an AC voltage for the driving of said magnetron, said switching means including a plurality of switches turned on/off in response to said DC voltage from said DC voltage  
15 generation means;

variable-frequency control means for varying a switching frequency of said switching means according to a level of said DC voltage from said DC voltage generation means to maintain said AC voltage from said switching means at a constant level;

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magnetron drive voltage generation means for converting said AC voltage from said switching means into a high-power DC voltage and transferring the converted DC voltage to said magnetron to drive it.

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2. The variable-frequency inverter microwave oven as set forth in claim 1, further comprising drive current sensing means for sensing a current amount of said commercial AC voltage.

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3. The variable-frequency inverter microwave oven as set forth in claim 2, further comprising a microcomputer for controlling output power of said microwave oven in response to a user's cooking command and on the basis of the current amount sensed by said drive current sensing means.

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4. The variable-frequency inverter microwave oven as set forth in claim 1, further comprising protection means for, if the level of said DC voltage from said DC voltage generation means is higher than or equal to a predetermined threshold voltage level, turning off said switching means to prevent said switches thereof from being damaged.

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5. The variable-frequency inverter microwave oven as set forth in claim 1, wherein said variable-frequency control means includes:

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a DC voltage input node for receiving said DC voltage from said DC voltage generation means inputted thereto;

a current source for supplying switching current for said switching operation of said switching means, based on

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said DC voltage inputted to said DC voltage input node; and

an integrated circuit for generating a different frequency according to the amount of said switching current supplied from said current source and outputting the generated frequency to said switching means.

6. The variable-frequency inverter microwave oven as set forth in claim 5, wherein said variable-frequency control means further includes a transistor having its base connected to said current source and its collector connected to said integrated circuit.

7. The variable-frequency inverter microwave oven as set forth in claim 5, wherein said integrated circuit is adapted to lower said switching frequency of said switching means if the amount of said switching current supplied from said current source is below a predetermined reference value, and raise said switching frequency of said switching means if said switching current amount is above said reference value.

8. A method for controlling a variable-frequency inverter microwave oven, comprising the steps of:

a) rectifying and smoothing a commercial AC voltage into a DC voltage;

b) varying a switching frequency of a switching device

with a variation in said DC voltage; and

c) performing a switching operation of said switching device at the varied switching frequency to generate an AC voltage, and driving a magnetron using the generated AC voltage.

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9. The method as set forth in claim 8, wherein said step

a) includes the step of, if a level of said DC voltage is higher than or equal to a predetermined threshold voltage level, shutting down said switching device to prevent it from being damaged.

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10. The method as set forth in claim 8, wherein said

step b) includes the step of lowering said switching frequency of said switching device if a level of said DC voltage is below a predetermined reference value, and raising said switching frequency of said switching device if said DC voltage level is above said reference value.

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